

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Canadian Nuclear Association's first meeting last week in Toronto was initial effort of Canada's uranium mining companies, working jointly with industrial organizations, to chart future of atomic energy in Canada. Severe cut-back in uranium output, to which Canada's uranium mines are now adjusted, spurred efforts there to probe future of the industry. Meeting subjects reflected this concern, covering economics of nuclear power stations; export future for radioisotopes; non-nuclear uses of radioisotopes; prospects for nuclear power in Canada; the Canadian uranium industry; and related discussions on nuclear insurance, government liaison, etc. (Other MEETINGS, CONFERENCES, p.5 this LETTER.)

Manufacturer of nuclear core handling equipment and other devices for nuclear projects, Target Rock Corp., Hempstead, L.I., has sold "substantial interest" to Curtiss-Wright Corp. The equipment will complement the nucleonic equipment now being sold by Curtiss-Wright, some of which it imports and some which it produces. (C-W also bought the assets and product lines of Abrams Instrument Corp., Lansing, Mich., manufacturer of electronic and allied precision equipment. (Other BUSINESS NEWS, p.3 this LETTER.)

Contract to furnish critical assembly reactor for the Japan Atomic Energy Research Institute has been received by General Electric Japan, Ltd., subsidiary of the U.S. firm. The company's atomic power equipment department, San Jose, Calif., will design the reactor, to be known as the light water critical assembly, and fabricate the nuclear fuel for General Electric Japan, Ltd. Scheduled to be completed in July 1962, the critical assembly will be located at Tokai-Mura.

Short course on nuclear rocket propulsion will be given by the University of Florida on the Gainesville campus June 12-13, 1961. Course leaders will be F. P. Durham, associate division leader in charge of engineering design for Los Alamos laboratory's nuclear rocket propulsion program, and R. W. Bussard a member of the Los Alamos nuclear propulsion division. Prerequisite for the course is a degree in engineering or the physical sciences. Full information may be obtained from R. E. Uhrig, department of nuclear engineering, University of Florida. (Other COURSES, p.5 this LETTER.)

Following cancellation of the U.S. aircraft nuclear propulsion program (this LETTER, p.1, April 11, 1961) USAEC said that allocation of \$20 million for a substitute high temperature research program would be divided among three organizations: \$13,200,000 for a Pratt & Whitney reactor experiment, and \$1,000,000 for that company's research and development work; \$4,500,000 for research and development work by General Electric Co.; and \$1,200,000 for Oak Ridge National Laboratory research and development. Biggest cuts in personnel will be made by GE which will retain for this work some 300 of its ANP staff that had numbered about 4,000 although some ANP people have been transferred to other positions with the company. Pratt & Whitney will reduce its staff from 2,400 to about 1,450. (Other RESEARCH NEWS, p.2 this LETTER.)



PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: New multiple coincidence unit, Model 801, accepts up to five input signals and delivers three simultaneous output signals. Said to be the most versatile unit commercially available, main chassis of the model 801 contains three independent fast-slow coincidence circuits and up to five plug-in circuit boards for processing signals from as many as five radiation detectors. Coincidence resolving time is adjustable from 0 to 180 millimicroseconds. --Cosmic Radiation Laboratories, Bellport, N.Y.

MANUFACTURERS' NEWS: Two new Van de Graaff accelerators, designed and built by High Voltage Engineering Corp., are now in operation at the Western New York Nuclear Research Center, Inc., at the University of Buffalo. Nuclear training courses offered by the University, as well as research and development projects under industrial contracts will use the output of the machines: controlled beams of electrons, x-rays, positive ions, and neutrons. One accelerator produces up to 2-Mev electrons at 2.5 kw or about 10 million roentgens per hour of 1-Mev x-rays. The other machine develops 50 microamperes of 400-kev protons or deuterons for neutron production.

Some \$1,950,707 in 175 grants has been awarded to educational institutions by the USAEC to purchase laboratory equipment to initiate or expand curricula in the life or physical sciences and engineering related to nuclear energy. Of the group, some ninety-seven of the colleges and universities are receiving grants from the USAEC for the first time. The large number of new colleges and universities awarded grants reflects a USAEC decision in August 1960 to broaden its program of assistance for nuclear education to include colleges of arts and sciences as well as engineering schools.

Complete instrumentation of the control center of the NASA's Plum Brook research reactor has been furnished by Leeds & Northrup Co., Philadelphia. The reactor, second largest of its kind in the U.S., has full rated capacity of 60,000 kw. It will permit research on materials designed for space technology by subjecting material for use in launching vehicles and space ships to varying amounts of radiation. The L&N equipment includes a thermal computer for measuring the reactor power output as well as indicating, recording and controlling instruments. In addition, L&N proportioning devices will automatically control the rate of change of the reaction and the intensity of the power level of the reactor.

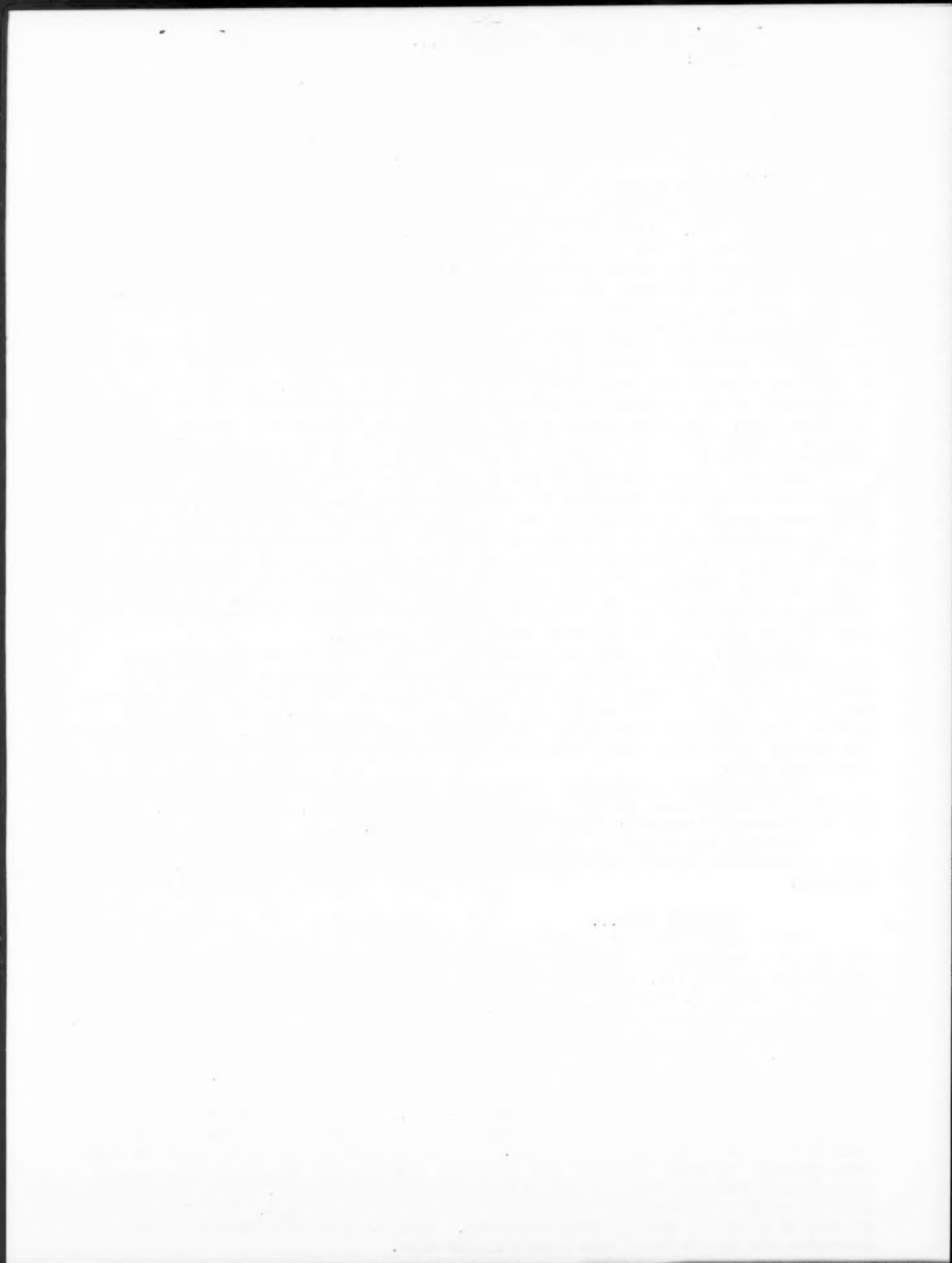
PROCESSES: Pilot plant in an advanced design stage at the Atomic Energy Research Establishment, Harwell, England mixes liquid radioactive wastes with a slurry of silica and borax to form a glass that incorporates 20 to 30% waste oxides. The project is part of the continuing effort on the part of U.S., Canadian and British teams to store radioactive materials in an inert substance. Operations at the Harwell pilot plant which will have capacity of 1,000 curies, are scheduled to start next year.

MANUFACTURERS' LITERATURE: Wall chart showing the distribution of ionizing radiation in outer space has been prepared by Tracerlab, Inc., Waltham, Mass. Copies may be obtained on request; the chart is priced at \$1.

Informal discussions of air sampling and radioactivity measurements are covered by "Particle Topics", new monthly newsletter of Gelman Instrument Co., Chelsea, Michigan.

RESEARCH NEWS...

First experimental demonstration of a reduction in the incidence of bone tumors induced by a radioactive substance was reported by a group from Argonne National Laboratory, Lemont, Ill. Speaking before the Radiation Research Society in Washington last week, Marcia W. Rosenthal described work she and her associates had done in reducing the occurrence of bone cancers in laboratory animals given plutonium dosages. She reported on the progress of a long term experiment at Argonne using the chelating agent DTPA. She noted that DTPA will remove about half of the absorbed plutonium from the bones of mice, even when treatment is delayed for three days. Under these conditions of delayed therapy, she reported that it was possible to decrease the number of mice with bone tumors by about one-half. In addition, she said it was possible to increase by about 50 days the average survival time of the mice that had been given a large dosage of plutonium. In the experiment, the first reported long-term research on tumor incidence and plutonium removal, 450 mice were given enough plutonium to decrease their normal lifetimes by about one-third. DTPA was injected into the mice at one-day intervals for a total of one to 12 days. The mice were allowed to live out their natural lifetimes. Then x-ray studies were conducted to determine the incidence of bone tumors in the mice.



ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED: Contract in amount of \$756,750 has been awarded by the USAEC to Holder Construction Co., Atlanta, Ga., for facilities in conjunction with a small research reactor--the fast burst reactor--at Oak Ridge National Laboratory. Holder was low bidder on the job. The fast burst reactor estimated to cost some \$1,400,000 is designed to deliver short bursts of radiation for bio-medical and health physics research. It will consist mainly of a core of uranium molybdenum alloy without shielding or moderator.

Contract to furnish the nuclear instrumentation and safety system for the plutonium recycle critical facility at Hanford Works has been awarded General Electric Co's atomic power equipment department, San Jose, Calif. The equipment will be built by the department's newly-formed nuclear electronic products section. The plutonium recycle critical facility is a heavy-water moderated critical assembly reactor designed to test up to a full load of fuel elements for the plutonium recycle test reactor, a \$15 million facility recently completed at Hanford.

In a \$909,000 contract award by the USAEC, Edward Gray Corp., Chicago, Ill., will construct waste processing, storage and a shipping annex for a building at Argonne National Laboratory, Lemont, Ill.....Miller-Davis Co., Melrose Park, Ill., will construct an addition to the chemical engineering building at Argonne National Laboratory under a USAEC contract in the amount of \$1,109,000.

For the Hanford New Production Reactor, Pratt & Whitney Co., W. Hartford, Conn., will furnish outlet nozzles for process tubes. The contract award, made by the USAEC, was in the amount of \$501,879.....Horizontal rod drives for this reactor, complete with hydraulic controls and power units, will be supplied by Rucker Co., Oakland, Calif., under \$590,511 contract award made by the USAEC.

CONTRACTS TERMINATED: Contract signed in February 1959 and modified in August 1960 between USAEC and East Central Nuclear Group and Florida West Coast Nuclear Group has been terminated by the Commission due to technical and economic uncertainties. The project involved a gas-cooled heavy-water moderated power reactor. Action of the Commission followed a proposal submitted by the companies on Feb. 14, 1961 which provided for continuation of the present development program to the end of 1962 but deferred until that time consideration of a firm commitment by the utilities to construct the plant.

NEW BOOKS & OTHER PUBLICATIONS...

Radioactive Substances. M. Curie. Translation from the French of the classical thesis presented to the Faculty of Science, Paris. 95 pages. --Philosophical Library, New York 16. (\$2.75)

Nuclear Frontiers; 1960. Proceedings of the December 1960 annual conference in San Francisco of the Atomic Industrial Forum. Included are some 55 papers on 13 different areas of problems peculiar to the atomic energy industry. 330 pages. --National Agency for International Publications, New York 17, (\$10.00)

The Atomic Energy Commission and Regulating Nuclear Facilities. W. H. Berman, L. M. Hydeman, University of Michigan Law School. A study of the need for changes in the regulatory procedures and the organization of the USAEC. --Atomic Energy Research Project, U. of Michigan, Ann Arbor, Mich. (\$5.00)

Radiological Units and Measurements. Report of the International Commission set up to develop basic principles of units, standards and measurements needed in radiation dosimetry and to develop specifications of radiation treatment. As Handbook 78, it supersedes National Bureau of Standards Handbook 62. (65¢).....Improving the USAEC Regulatory Process. Includes the study made by the JCAE and other background material. (Vol. I; 30¢. Vol. II; \$2.75). --Sup't. of Documents, Wash. 25, D.C.

Use of Radioactive Iodine Vapor for Determining Surface Roughness. Work done at University of Kansas under contract from Wright Air Development Div., USAF. No. PB-161, 844. 48 pages. (\$1.25).....Some New Types of Neutron Shielding Materials. Report of investigations at Air Research and Development Command's nuclear engineering test facility. No. PB-161,308. 7 pages. (50¢).....Theoretical and Experimental Investigation of Radioactive Ionization Gauges. Work done at University of Michigan for Air Research and Development Command. No. PB-171,105. 183 pages. (\$3.00). --Office of Technical Services, Washington, D.C.

NOTES: List No. 65 of U.K. Atomic Energy Authority is now available. Recent list of original documents and translations. Issued by the U.K. AEA, 11 Charles II St., London, S.W. 1, England, and available on request.



ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED May 9, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Recovery of lithium from ore. George P. Robinson, inventor. No. 2,983,576 assigned to Basic Atomics, Inc., New York, N.Y. (2) Fuel elements for nuclear reactors. Arthur Shillitto, Douglas F. Seymour, inventors. No. 2,983,662 assigned to The English Electric Co., Ltd., London, England. (3) Neutron-capture gamma-ray prospecting method. James W. Earley, Charles W. Tittle, Albert R. Graham, inventors. No. 2,983,817 assigned to Gulf Research & Development Co., Pittsburgh, Pa. (4) Radiation meter. James M. Constable, inventor. No. 2,983,818 assigned to Electronic Products Co., Mt. Vernon, N.Y. (5) Radiation gauge. John E. Bigelow, Robert A. Arrison, Jr., Stanley Bernstein, inventors. No. 2,983,819 assigned to General Electric Co., New York. (6) Well logging apparatus. Arthur H. Frentrop, inventor. No. 2,983,820 assigned to Schlumberger Well Surveying Corp., Houston, Texas. (7) Protective device. Ferdinand Cap, Innsbruck, Austria. No. 2,983,821 issued to inventor of record. (8) Neutron discharge tube. Leonard Reiffel, inventor. No. 2,983,834 assigned to Armour Research Foundation, Chicago, Ill.

PATENTS ISSUED May 9, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Tube splitting apparatus. Charles E. Frantz, William E. Cawley, inventors. No. 2,983,042 assigned to USAEC. (2) Electronic bivan wind direction indicator. Harry Moses, inventor. No. 2,983,144 assigned to USAEC. (3) Specific heat indicator. Frederick L. Horn, John W. Binns, inventors. No. 2,983,145 assigned to USAEC. (4) Heterogeneous nuclear reactor employing small unclad bodies of fissionable material as fuel. Herbert H. Hyman, Joseph J. Katz, inventors. No. 2,983,658 assigned to USAEC. (5) Neutronic reactor burial assembly. Michael Treshow, inventor. No. 2,983,659 assigned to USAEC. (6) Fabrication of tube type fuel elements for nuclear reactors. No. 2,983,660 assigned to USAEC. (7) Fuel element for nuclear reactors. Charles H. Bassett, inventor. No. 2,983,663 assigned to USAEC.

PATENTS ISSUED May 16, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Telescoping fuel element assembly for nuclear reactors. James J. Dickson, inventor. No. 2,984,609 assigned to Allis-Chalmers Manufacturing Co. (2) Protective equipment. Anthony E. T. Nye, inventor. No. 2,984,610 assigned to The British Thomson-Houston Co., Ltd., London, England. (3) Directional radiation detector. Serge A. Scherbat-sky, inventor. No. 2,984,745 issued to inventor of record. (4) Measuring apparatus. Karl C. Speh, Walter E. Landauer, inventors. No. 2,984,746 assigned to Cutler-Hammer, Inc., Milwaukee, Wisc. Gamma ray projector. Willard B. Converse, inventor. No. 2,984,748 assigned to The M. W. Kellogg Co., Jersey City, N.J.

PATENTS ISSUED May 16, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Nuclear reactor fuel element. William Fairhurst, inventor. No. 2,984,611 assigned to U.K. Atomic Energy Authority, London, England. (2) Nuclear reactor refuelling devices. Stanley Hackney, Gordon Packman, inventors. No. 2,984,612 assigned to U.K. Atomic Energy Authority, London, England. (3) Fuel element for nuclear reactors. Charles H. Bassett, inventor. No. 2,984,613 assigned to USAEC. (4) Means for visualizing flow patterns. Frederick E. Lynch, Luther D. Palmer, Heinz F. Poppendiek, George M. Winn, inventors. No. 2,984,744 assigned to USAEC. (5) Super-regenerative radio ranging device. Robert T. Nieset, Horace R. Crane, Anne C. Gratian, Joseph W. Gratian, inventors. No. 2,984,833 assigned to USAEC. (6) Broaching and tube installing apparatus. Charles E. Frantz, William E. Cawley, inventors. No. 2,983,989 assigned to USAEC.

PATENT NEWS: A new group of 56 patented inventions, developed in the course of nuclear research and development under USAEC-sponsorship, and owned by the U.S. Government, are now available for industrial use on a royalty-free (non-exclusive) basis. The group includes patents issued mostly during the first three months of 1961 and previously listed in this LETTER. Information on this group, as well as on 2,500 similarly released inventions may be obtained from Office of the General Counsel, USAEC, Germantown, Md.

PEOPLE...in nuclear work...

William L. Everitt, dean of engineering, University of Illinois, Urbana, has been elected president of Associated Midwest Universities, Inc., for the coming year. AMU cooperates with Argonne National Laboratory in its high energy physics programs.

Roy B. Snapp, secretary of the U.S. Atomic Energy Commission from 1947-1952 has been placed in charge of American Machine & Foundry's Washington D.C. office.



MEETINGS, CONFERENCES, COURSES...

COURSES: Nuclear Methods Applied to Oceanography and Related Fields is a two week course to be conducted November 6-17, 1961 by Oak Ridge Institute of Nuclear Studies' special training division. Including both laboratory and lecture sessions, the course will be limited to 20 persons. Applications must be returned by August 1, 1961. Information may be obtained from ORINS, P.O. Box 117, Oak Ridge, Tenn.

Two new instruction courses to train firemen to cope with fires involving radiation hazards have been prepared for use of the states by the USAEC and the U.S. Office of Education's division of vocational education. Available is an instructor's guide, a student manual and 12 illustrated charts for the instructor's use; the material may be ordered as "Peacetime Radiation Hazards in the Fire Service", from Sup't. of Documents, Wash. 25, D.C. The student manual is 30¢; the instructor's manual is 35¢. Copies of the charts may be obtained from Trade and Industrial Branch, division of vocational educations, U.S. Office of Education, Wash. 25, D.C.

One year graduate course in radiation control is being offered by the USAEC which will pay tuition and laboratory fees for students accepted for the course. It entails an academic year beginning in the Fall term of 1961-62 at the University of Michigan school of public health at Harvard University's school of public health and 8 to 10 weeks of practical experience at an installation of the USAEC. The course is intended to train for positions in state, county or municipal offices that might have responsibility for matters dealing with radiation. (A 1959 amendment of the Atomic Energy Act permits the USAEC to transfer to the states regulatory control of uranium and thorium; radioisotopes; and small amounts of uranium-233, uranium-235 and plutonium.) Applications for the course must be received by Oak Ridge Institute of Nuclear Studies by June 15, 1961.

Courses in Reactor Operations Supervision and Reactor Hazards Evaluation, sponsored by the USAEC and conducted by Oak Ridge National Laboratory, are offered this year beginning September 25, 1961. One year courses, they have a final applications deadline of June 15, 1961. Information, etc., may be obtained from the USAEC's Division of International Affairs, Wash. 25, D.C.

Reactor Science and Technology and Nuclear Engineering Research and Development are two courses scheduled for Oct. 4, 1961 -- Feb. 6, 1962 by USAEC's International Institute of Nuclear Science and Engineering, Argonne National Laboratory, Lemont, Ill. Applications must be on file by May 31, 1961; information may be obtained from USAEC, Wash. 25, D.C.

CONFERENCES: Property Changes in Reactor Materials and Radiation Damage will be subject of conference scheduled for May 29--June 2 in Bristol, England under sponsorship of Berkeley Nuclear Laboratories of Central Electricity Generating Board, Bristol, England.

Joint conference on Nuclear Reactor Chemistry and Analytical Chemistry in Nuclear Reactor Technology will be sponsored by the USAEC's Oak Ridge National Laboratory. It is scheduled to be held at Gatlinburg, Tenn., Oct. 10-12, 1961. Full details may be obtained from W. R. Grimes or C. D. Susano at ORNL, P.O. Box X, Oak Ridge, Tenn.

Fourth Japan Conference on Radioisotopes will be held under sponsorship of Japan Atomic Industrial Forum in Osaka, Japan, Oct. 17-19, 1961. Details may be obtained from R. Suga president of the Forum, 1, 1-chome, Shiba, Tamura-cho, Minato-ku, Tokyo, Japan.

SYMPOSIA: Symposium on University Use of Subcritical Assemblies will be co-sponsored by American Nuclear Society, and Oak Ridge National Laboratory and conducted by ORINS, Gatlinburg, Tenn., Aug. 28-30, 1961. Details may be obtained from Symposium Office, ORINS, P.O. Box 117, Oak Ridge, Tenn.

MEETINGS: Nuclear Congress and Atomic Exposition for 1962 is scheduled to be held June 4-6, 1962 in the New York Coliseum, sponsored by the Engineers Joint Council, Inc. Management of the exposition will be, as in previous years, by Reber-Friel Co., 117 So. 17th St., Philadelphia 3, Pa. Floor plans and information may be obtained from that organization.

Sincerely,

The Staff
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